Research.

INTERMOUNTAIN FOREST & R... EXPERIMENT STATION
316 EAST ...Y... ...EET
BOISE, IDAHO 83706

TOWN CREEK PLANTING STUDY

1954

Town Creek Planting Study

Introduction

The Boise Basin is one of the best ponderosa pine producing areas in Region 4.

Lumbering in the Basin first started with the discovery of gold in 1863. By 1867, there were four sawmills processing lumber in the Basin. The timber in the area supplied in the late 1860's the needs for business, homes, cabins and fuel for an estimated population of 70,000 persons. As the gold supply was mined the population decreased. By 1900 the population had shrunk to about 5,000 and is now reduced to only a couple hundred persons.

The town of Boise came into existence in the 1860's and was growing. Their need for fuel and lumber was partially supplied from the Basin. Two fair size mills were operating in Boise in the early 1880's. Their timber mostly came from the Basin. The logs were driven down Moores Creek and the Boise River. In 1918, a railroad connecting Boise with the Boise Basin and a 50 million capacity mill had been built at Barber. Large scale logging operations were in full swing within the Basin.

History of Fires

There are some sixty-five thousand acres within the Basin in all ownerships that are not producing timber as a result of fires. The first fires of any size were as follow: The Henry Creek fire in 1919, the Granite Creek fire in 1930, the Macks Creek and Quartsburg fires in 1931, the Elk Creek fire in 1934 and the Warm Springs fire in 1945.

There were numerous other smaller fires that added some acres to the non-producing timber acres left by the larger fires.

The Quartsburg fire in 1931 burned 50,000 acres. About 30,000 of these acres are in the Basin, most of which are now producing brush. Some of the best timber was cut from these acres.

Plantations

A number of different experimental plantations and seedings have been tried over the years on these burns and for the most part have not proved too successful.

Town Creek Planting Study

In March, 1954, the Town Creek planting study was proposed by Lester Moncrief. In cooperation with Research a meeting was held and the many variables were discussed. It was decided that this study would start at the nursery. Every effort would be taken to eliminate shock in lifting, bundling, storage and transportation. 2-1 and 2-0 stock would both be treated in this manner and in addition, some 2-1 stock would be handled in the regular way as a check. It was also decided that different methods of site treatment would be given.

Research further cooperated in setting up the experimental design, in the establishment of culling and planting procedures as well as assisting in the training of the individual planters in care and planting of the trees.

The Nursery

The first step in the study necessitated a trip to the Forest Service Nursery at Bend, Oregon. The very best of cooperation was received from Mr. Engstrom, who is in charge of the nursery.

Region 4 trees were lifted before growth started. Special care was taken at the time of lifting to prevent any more exposure of the roots to the air than was necessary. The trees did not go through the regular sorting procedure but were bundled immediately and placed in the cold storage plant at temperatures ranging from 30° to 35° F.

Care in Shipment of Planting Stock

One shipment of 30,000 trees were shipped by truck from Bend to Boise. The trees were placed on a commercial truck line on a Monday. These same trees were received at Idaho City on the following Thursday. The needles of the trees seemed dry. The cedar shavings around the roots were damp. The bundles were loose and some trees on the outside of the bundles had parts of their roots exposed. The trees in this shipment are referred to as regular 2-1 stock and except for the elimination of the sorting procedure they represent "normal" handling.

The special stock, both 2-0 and 2-1 was handled differently. A Forest Service truck drove from Boise to Bend in six hours. The driver had plenty of canvas with him. The truck bed was incased with canvas. The trees were brought from cold storage and placed in the truck with a fine spray of water showering on them until the truck was loaded.

The canvas was then stretched over the top and secured with rope. The truck returned to Boise in seven hours the following day. One hundred and fifty thousand trees can be handled on one 3-ton truck. The Boise K-V, the Payette K-V and the trees for the study area were brought at one trip. The bundles become loose during the trip. The looseness, we discovered, was caused by the trees becoming more compact within the bundles. The trees were fresh and very damp upon delivery. The special trees arrived at two different deliveries two weeks apart. The regular stock was held throughout the month.

Storage of Planting Stock on Delivery

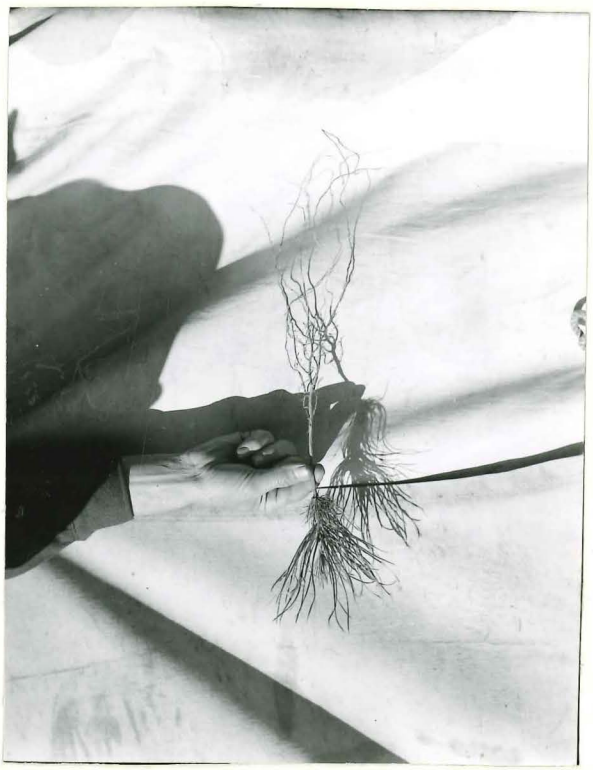
Upon arrival the trees were placed flat on snow in bundles and covered with snow. The trees remained under snow until taken out for planting. This was done to keep them from drying out or breaking dormancy. A day's supply was brought to the sorting camp each day. The trees to be planted last were again buried in the snow, or snow and cedar shavings until ready to plant. Broken bundles, partially used, were treated in the same manner.

A portable canvas shelter was set up at each camp site to keep wind and sun off the trees while they were being sorted.

When a bundle was broken for use, care was taken to keep root exposure to a minimum. As a layer was removed the cedar shavings were returned to insure dampness and keep out air currents. In counting and sorting a handful of trees were taken from a bundle at a time and kept covered as each unit was sorted. Where straight count was made with regular stock wet burlap was thrown over the counted trees. In the special stock the trees were sorted and wet cedar shavings were added as groups of ten or twenty trees were placed in the planting bundle. The special stock planting bundles ranged from 75 to 95 trees, according to the estimated needs of the foreman for each individual planter to take care of one-half day's needs.

200 to 250 trees were placed in bundles for the crew planting regular stock.

2-0 Stock



2-1 Stock

In the second week of planting it was found during a series of dry, windy days that cedar shavings alone did not give adequate protection for the "tail enders." Sphagnum was obtained and soaked thoroughly and used with wet cedar shavings in a 50-50 proportion. The mixture was good for all conditions, protecting the roots until the trees were planted. This packing mixture could be re-used with soaking until it accumulated enough trash to cause possible skinning of freshly packed trees. It was then discarded.

Since the planting bags used were only about eleven inches deep the roots had to be folded back in the burlap to let the trees ride without side "slopping." Hanging trees catch in the brush and pull out or cause a gapping of the top of the bundle, letting air down to the roots. There was a small amount of root skinning by the planters which might have been avoided by using a deeper bag and packing a longer bundle without root folding.

Throughout the counting, sorting and planting operations, personnel were reminded that the trees were "babies" in every sense of the word. Constant

care was taken to prevent undue exposure of the roots to insure the planting of "live" babies.

Trees kept in planting burlap for morning use were "heeled-in" in the ground at first. It was found later that they keep better when covered with snow and cedar shavings.

Sorting

2-0 Trees

In sorting the trees care was taken in separation to avoid skinning the roots. Despite this there was some sorter skinning and some skinning and bruising from nursery handling. Since we were culling for a good 12 inch root, trees were discarded if there was a single 12" or 13" tap root with little lateral root growth and the last inch or two of the top broken or skinned. Where there were several healthy roots articulating above break or skinned root the tree was sometimes kept. When excessive skinning of one root (above 10% in the sorter's opinion) occurred the tree was discarded.

Twelve inches or better was the desired length of root for trees kept. Root sturdiness was inspected and in the case of a single hairlike root which might go to 16 inches the tree was discarded. Some trees were kept which had no dominant tap root but a healthy cluster of small sturdy roots which reached or exceeded the desired length with no injuries. A good root system was the first qualification for keeping the tree.

In culling tops, general thriftiness with adequate needles was used as the criteria. In the case of asymmetrical tops they were examined to see if there was actual crushing or merely packing flattening and dislocation.

Discoloration of brown or wilt were overlooked unless over 20% of the needle length was affected.

2-1 Trees

Extreme care had to be taken in the separation of 2-1 stock to avoid skinning, and there was a great deal more skinning. Where the skinned root was small and did not exceed 10% of a generally thrifty root cluster the tree was kept. Whenever possible the nursery dirt packed around the root was left intact.

A great many of the roots were bent to a 90° angle. If the root straightened to a better than 12" tap root and was healthy, the tree was kept. In some cases the root had such a gnarled or coiled form that it was discarded to avoid possible injury to other trees by snarling other roots in the planting bag.

Trees with large tap roots of seven or eight inches with a few stringy lateral roots were discarded. Trees with large healthy stems and short matted root systems were discarded.

In general, the inspection of trunks and needles was the same as in 2-0 stock. Some discoloration was tolerated where it didn't affect 10% of the needles.

Special Planting Procedure

In the special planting a hole 16" deep was dug with a shovel.

The tree was held at the root crown and placed in the hole. The root crown was even with the ground surface.

Clean dirt was placed in the hole, about a shovel full at a time and tamped tight. Care was taken not to skin the roots.

In this way the hole was gradually filled and no air pockets were left.

When the hole was filled the tree was planted. The planter stepped ahead 6' and dug a hole for the next tree. The 2-0 and 2-1 special were both planted in this manner. Each planter was able to plant 150 trees a day at the start. The planters soon became more efficient and the crews were averaging 180 individual trees per man day.

Regular Planting

The regular planting crews used their shovels as a bar. The shovel was reversed in the hand and struck into the ground and pulled toward the operator. A hole was thus made and the tree inserted.

The operator then removed the shovel and firmed up the ground, closing the hole by using the heal of his shoe.

The regular planters were able to plant about 400 to 450 trees per man day.

Treating of the Area

Three different areas were planted. There were three sections to each area and nine strips to each section. The strips varied in length - the shorter strips being 23 chains and the larger ones 27 chains.

A D-7 tractor with an angle dozer was used to remove the brush on 2/3 of the strips. Some cutting on the upper side of ~~road~~ strip was necessary on the steeper slopes.

The object was to remove the brush with the least amount of soil removal.

On one-half the tractor cleared strips an C-C-3 tractors with plow was used to plow a furrow from 10 to 12 inches deep on each side of the cleared strips. The plow furrows were about four and one-half feet apart.

This left one-third of the strips in the study in a natural condition. The brush varied from very dense to open clusters of ceanothus, some willow, chokecherry, bitter brush and snowberry were scattered through the ceanothus.

In each section of the three areas one strip of the natural, one of straight tract or brush removal, and one of tractor and plow was planted with one of each of the regular 2-1 and 2-1 special and 2-0 special planting stock.

Marking

Each area and each section of each area was marked at the corners with an aluminum tab attached to a treated 2"x 2"x 4' post.

Each strip was marked at each end with an aluminum tab which indicated the ground treatment and the stock of trees planted.

Every other tree in each row of all strips was staked. The stakes were placed approximately one foot past the tree. Every fifth stake in each row was then painted. Three colors of paint was used. The first strip in all areas was painted silver, followed by red and then yellow. This combination was then repeated three times in each section.

Town Creek Planting Study

Variables Used

Strip No.	Planting Stock	Planting Treatment	Site Treatment
A-1	2-1	Regular	No treatment
A-2			Tractor stripping
A-3			Tractor and plow
B-1	2-1	Special	No treatment
B-2			Tractor stripping
B-3			Tractor and plow
C-1	2-0	Special	No treatment
C-2			Tractor stripping
C-3			Tractor and plow

Town Creek Planting Study

Tabulation of Strip, Color Used on Stakes and Number of Trees in Each Strip

Area 1

Section 1			Section 2			Section 3		
Strip	Color	No. Trees	Strip	Color	No. Trees	Strip	Color	No. Trees
A-3	Silver	503	C-1	Silver	322	A-2	Silver	428
C-3	Red	491	C-3	Red	578	C-2	Red	470
A-1	Yellow	322	A-1	Yellow	494	C-3	Yellow	502
C-1	Silver	256	A-2	Silver	471	B-1	Silver	295
B-2	Red	522	B-3	Red	452	A-1	Red	353
B-1	Yellow	320	B-1	Yellow	310	B-3	Yellow	518
C-2	Silver	467	B-2	Silver	379	B-2	Silver	460
B-3	Red	522	A-3	Red	492	C-1	Red	200
A-2	Yellow	485	C-2	Yellow	462	A-3	Yellow	483

Area 2

C-3	Silver	485	A-2	Silver	461	C-2	Silver	508
A-1	Red	332	B-1	Red	350	A-1	Red	462
A-2	Yellow	462	A-1	Yellow	384	C-1	Yellow	244
B-1	Silver	232	A-3	Silver	487	A-2	Silver	572
A-3	Red	452	C-1	Red	220	C-3	Red	558
C-1	Yellow	206	B-2	Yellow	452	B-1	Yellow	304
B-2	Silver	494	C-3	Silver	512	B-2	Silver	471
B-3	Red	466	B-3	Red	449	B-3	Red	484
C-2	Yellow	473	C-2	Yellow	437	A-3	Yellow	415

Area 3

C-3	Silver	425	B-3	Silver	382	A-2	Silver	366
B-3	Red	485	C-3	Red	414	B-3	Red	397
B-2	Yellow	374	C-2	Yellow	392	A-3	Yellow	450
C-1	Silver	236	B-2	Silver	410	B-1	Silver	458
A-1	Red	268	C-1	Red	204	C-2	Red	526
A-3	Yellow	424	A-1	Yellow	350	C-3	Yellow	498
A-2	Silver	364	A-2	Silver	461	C-1	Silver	202
B-1	Red	320	B-1	Red	373	A-1	Red	407
C-2	Yellow	378	A-3	Yellow	434	B-2	Yellow	459

Protection

On all four sides of the special planting area were placed the standard Forest Service "Closed to All Grazing" signs.

Eighty-five of these signs were used. The signs were placed so that from any angle a person might approach the area a sign would be visible. In addition to closing the area to grazing the area was treated with a "dicon" poison secured from the Federal Fish and Wildlife Service. Fifty pounds of this poison was spread, a spoonful on each rodent hole found. The area was then signed with the standard "Warning Poison" cloth sign furnished for use with the 1080 stations.

To protect the planting the district ranger will advise the cattleman and sheepman in the area of the study. He will also advise them of the deadliness of the type of poison used to livestock.

It will be his responsibility to check on the area to make sure livestock are not entering or destroying any part of the study.

An area of approximately 1,000 acres which would include this year's planting and an additional area for carrying on this same project for four more years should be withdrawn as an administrative site. This is needed to protect the area from mining claims.

Additional Work Performed

A low standard entrance way was constructed from the county road at the head of slaughter house past Areas 1 and 2 over to Area 3. This way was 1.2 miles long.

A long ridge (the second in the background) leading from the head of Town Creek down into Ophier Creek was planted by the regular crew. In addition, 6 acres on the south side of the ridge and about 20 acres on the north side was planted the same way. These areas are shown on the attached map as X. X-1 areas shown on the map are special stock planted the regular way in plow furrows.

The Y areas were special planting with special stock in untreated areas.

The Z areas were special planting with special stock in plow furrows through the brush.

Organization

The following organization was used in the study:

1 leader, Mel Coonrod, and an assistant, either Trestrail or Ed Noble.
1 foreman, Roy Chenoweth, with six men on 2-0 special.
1 foreman, James Stover, with six men on 2-1 special.
1 foreman, Charley Clauser, with three or four men on 2-1 regular.
1 sorter, Bob Pitts.
1 OC-3 tractor operator, Red Rayner.
1 helper with the Talladega plow.
1 D-7 tractor operator, Fred Carr.

Ray Chenoweth, foreman 2-1 special crew, turned his crew over to Assistant Leader Trestrail and drove one D-7 tractor three days.

Recommendations

1. The trees should be planted as soon as practical in the spring.

2. The tractor work should be done in the fall. The advantages of fall work over spring work are as follow:

   a. In working in snow, one pass of the blade is needed to remove the snow. The second one to remove the brush. The brush is flat under the snow and a clean job of removal is not possible.

   b. The plow furrows would be sluffed naturally and would not have to be done by hand to protect the trees planted.

   c. Soft places develop while the snow is melting. The tractors sink in the most unexpected places. Difficulty is experienced in locating the strips properly.

3. The planting bags should be lengthened by eight inches to eliminate the need of folding root in the planting bundle and to insure better protection to the trees.

4. Areas 1, 2 and 3 should be expanded in each case following the same contour layout down hill.

5. The old road up Town Creek should be reopened for future planting.

   a. This would reduce men walking any further than necessary.

   b. It would eliminate walking, trampling and equipment injury to trees planted this season.

Summary of Work Performed on the Town Creek Planting Study in 1954

Experimental Area:

		Trees Planted
2-0	Special	12,766
2-1	Special	12,138
2-1	Regular	11,582
	Total Trees	36,486

Trees planted off the experimental area:

		Type of Planting
W Area	1,250	Special
Ophier X Area	9,450	Regular
X-1 Area	1,180	Regular
Y Area Smokey	2,000	Special
Y Area Potter	5,400	Special
Z Area 1 & 2	1,020	Special
Total	20,300	

Total of all trees planted 56,786.

No. strips - 23 to 27 chains in length 81.

Length strips brush removal with D-7 tractor and blade — 15-3/4 miles.
Length of plow furrows with tractor and plow — 17-1/2 miles.
Length of double tree rows in untreated strips — 8-1/4 miles.

19,403 stacked trees.

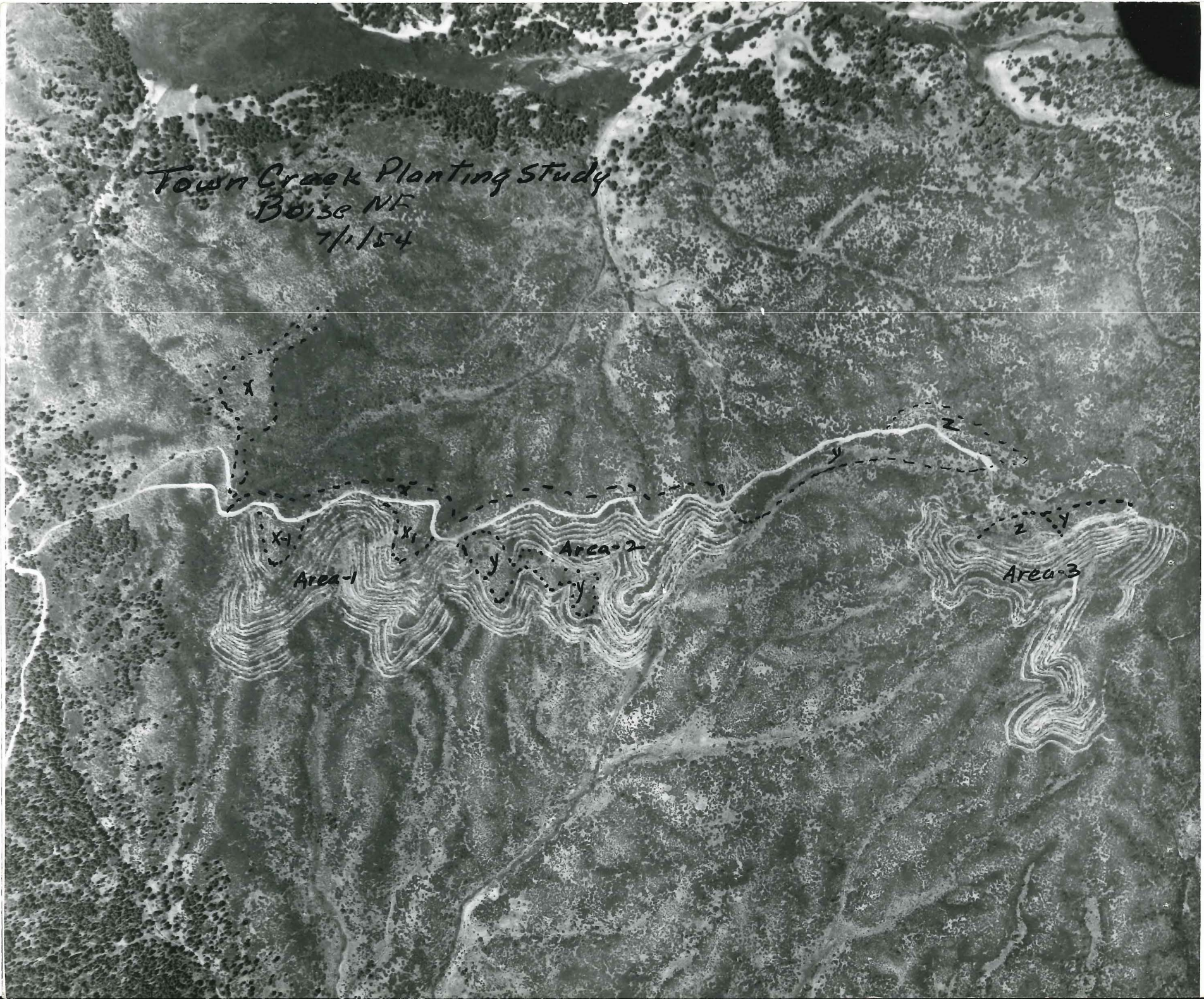
3,648 stakes painted.

1.2 miles of access low standard road constructed.

138 acres total in all planting.

3 miles of snow plowing was necessary on county road to open the area.

Melvin A Conrod


Town Creek Planting Study
Boise NF
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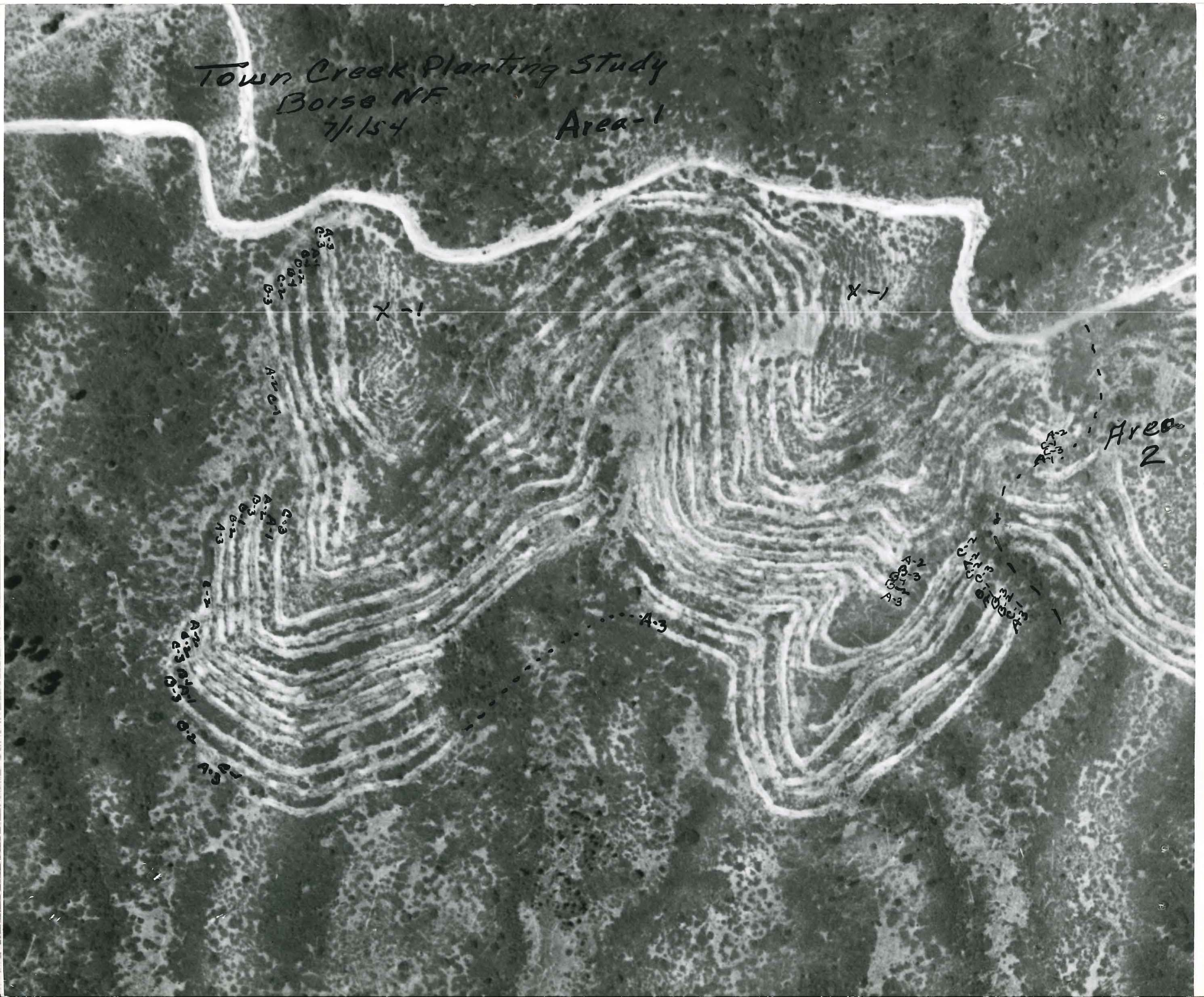
Area-3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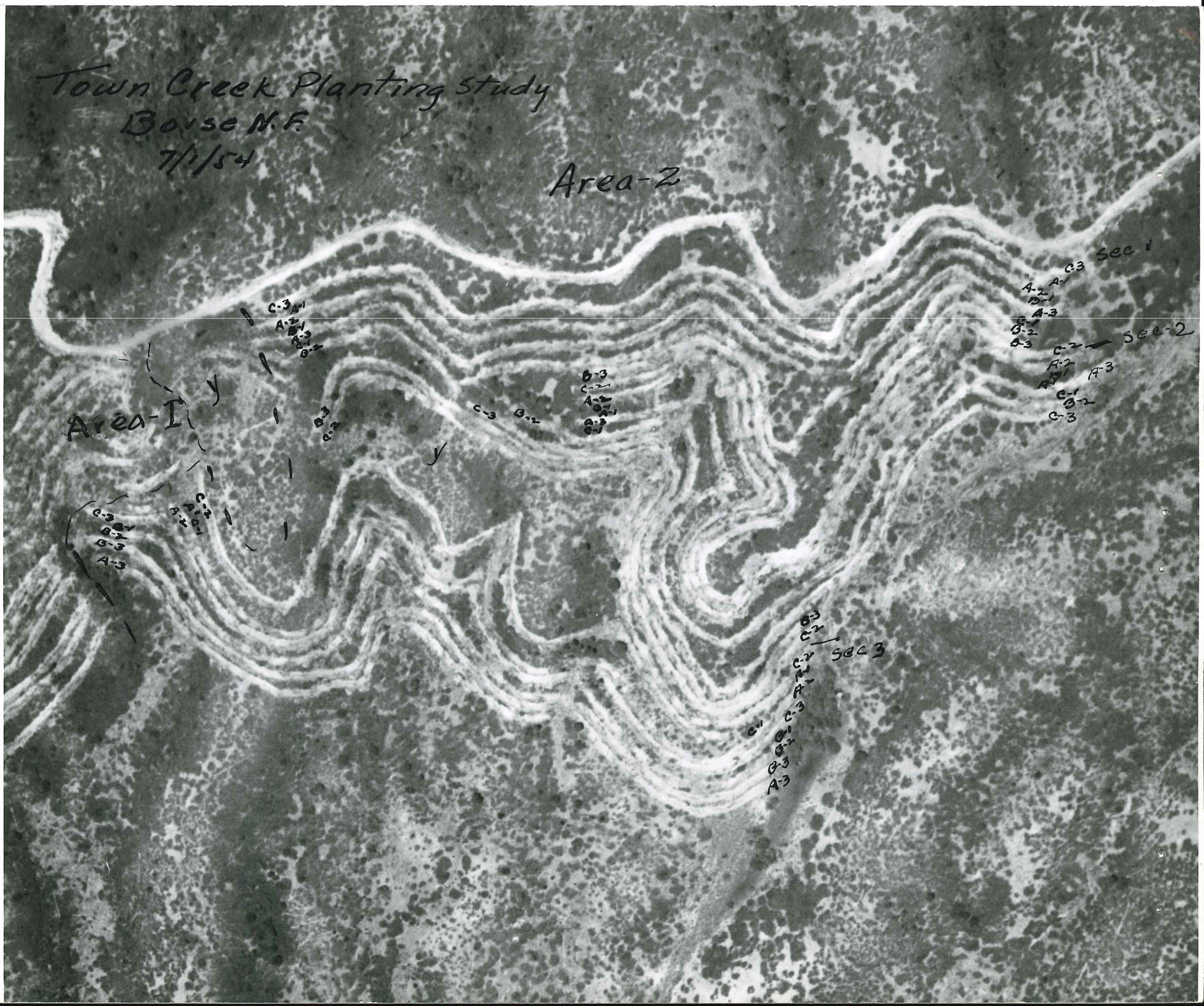
Area 2
A-3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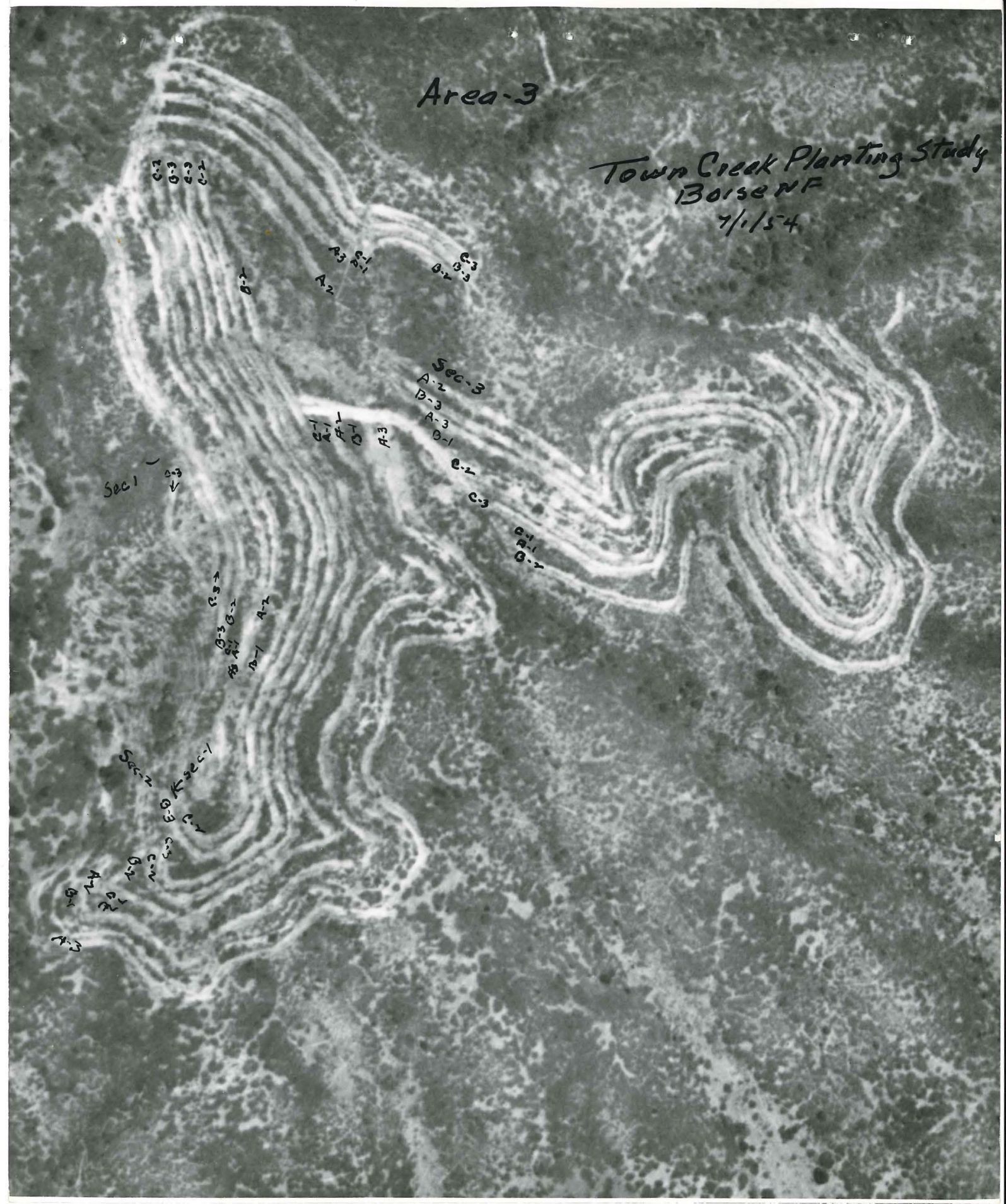
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